WHAT IS CLAIMED IS:

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1. A fluid-energy mill for size reduction of a material, comprising:

a manifold defining a grinding chamber, a gas inlet, a feed inlet, and an outlet, the grinding chamber having a center and a first radius extending from the center;

wherein the feed inlet is positioned such that the material enters the grinding chamber tangent to a second radius extending from the center, the second radius being larger than the first radius.

- 2. The fluid-energy mill of claim 1 further comprising a cover for enclosing the grinding chamber.
 - 3. The fluid-energy mill of claim 1 wherein the manifold defines a non-circular groove around the grinding chamber.
 - 4. The fluid-energy mill of claim 3 further comprising a seal positioned within the groove.
 - 5. The fluid-energy mill of claim 1 wherein the grinding chamber is cycloid-shaped.
 - 6. The fluid-energy mill of claim 1 wherein the manifold further defines a protective pocket at a region where the material enters the grinding chamber.
 - 7. The fluid-energy mill of claim 6 wherein the manifold further defines a barrier at the region where the material enters the grinding chamber.
 - 8. The fluid-energy mill of claim 1 wherein the feed inlet includes a feed gas inlet and a material funnel.
 - 9. The fluid-energy mill of claim 8 wherein an intersection of the feed gas inlet and the material funnel form an elliptical hole.
 - 10. The fluid-energy mill of claim 8 wherein the feed inlet includes a venturi.
 - 11. The fluid energy mill of claim 1 wherein the feed inlet is oriented at an angle to a horizontal.
 - 12. The fluid energy mill of claim 11 wherein the angle is about 30 degrees or more.
 - 13. The fluid energy mill of claim 1, wherein the gas inlet is positioned such that a gas enters the grinding chamber tangent to a gas inlet radius extending from the center, the gas inlet radius being smaller than the first radius.

- 14. The fluid energy mill of claim 1, wherein the outlet is positioned such that the material exits the grinding chamber at or near the center.
- 15. The fluid energy mill of claim 1, wherein the manifold comprises a one-piece manifold.
- 16. A fluid-energy mill for size reduction of a material, comprising:

 a one-piece manifold having a front face and a rear face;

 a grinding chamber formed in the front face;

 a feed inlet formed in the manifold in communication with the grinding chamber;

 a gas inlet formed in the manifold in communication with the grinding chamber;

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- an outlet formed in the rear face and in communication with the grinding chamber; a cover removably attachable to the manifold for covering the front face.
- 17. The fluid-energy mill of claim 16 wherein the manifold defines a non-circular groove around the grinding chamber.
- 18. The fluid-energy mill of claim 17, further comprising a seal positioned within the groove.
 - 19. The fluid-energy mill of claim 1 wherein the grinding chamber is cycloid-shaped.
 - 20. The fluid-energy mill of claim 16 wherein the manifold further defines a protective pocket at a region where the material enters the grinding chamber.
- 21. The fluid-energy mill of claim 20 wherein the manifold further defines a barrier at the region where the material enters the grinding chamber.
 - 22. The fluid-energy mill of claim 16 wherein the feed inlet includes a feed gas inlet and a material funnel.
 - 23. The fluid-energy mill of claim 22 wherein an intersection of the feed gas inlet and the material funnel forms an elliptical hole.
 - 24. The fluid-energy mill of claim 22 wherein the feed inlet includes a venturi.
 - 25. The fluid energy mill of claim 16 wherein the feed inlet is oriented at an angle to a horizontal.
 - 26. The fluid energy mill of claim 25 wherein the angle is about 30 degrees or more.
 - 27. The fluid energy mill of claim 16 wherein
- 30 the grinding chamber has a center and a first radius extending from the center, and

the feed inlet is positioned such that the material enters the grinding chamber tangent to a second radius extending from the center, the second radius being larger than the first radius.

28. The fluid energy mill of claim 16, wherein

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- the grinding chamber has a center and a first radius extending from the center, and the gas inlet is positioned such that a gas enters the grinding chamber tangent to a gas inlet radius extending from the center, the gas inlet radius being smaller than the first radius.
- 29. The fluid energy mill of claim 16, wherein the outlet is positioned such that the material exits the grinding chamber at or near the center.
 - 30. A fluid-energy mill for size-reduction of a material, comprising: a manifold defining a grinding chamber, a gas inlet, a feed inlet, and an outlet; wherein the feed inlet is oriented at an angle to horizontal.
 - 31. The fluid energy mill of claim 30 wherein the angle is about 30 degrees or more.
- 32. The fluid-energy mill of claim 30, further comprising a cover for enclosing the grinding chamber.
- 33. The fluid-energy mill of claim 30 wherein the manifold defines a non-circular groove around the grinding chamber.
- 34. The fluid-energy mill of claim 30 further comprising a seal positioned within the groove.
- 35. The fluid-energy mill of claim 30 wherein the grinding chamber is cycloid-shaped.
- 36. The fluid-energy mill of claim 30 wherein the manifold further defines a protective pocket at a region where the material enters the grinding chamber.
- 37. The fluid-energy mill of claim 36 wherein the manifold further defines a barrier at the region where the material enters the grinding chamber.
 - 38. The fluid-energy mill of claim 30 wherein the feed inlet includes a feed gas inlet and a material funnel.
 - 39. The fluid-energy mill of claim 38 wherein an intersection of the feed gas inlet and the material funnel forms an elliptical hole.
 - 40. The fluid-energy mill of claim 39 wherein the feed inlet includes a venturi.
 - 41. The fluid energy mill of claim 39, wherein the manifold comprises a one-piece manifold.

42. A method for size-reduction of a material, comprising:

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delivering a material to a feed inlet of a manifold defining a grinding chamber, a gas inlet, the feed inlet, and an outlet, the grinding chamber having a center and a first radius extending from the center;

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wherein the material enters the grinding chamber tangent to a second radius extending from the center, the second radius being larger than the first radius.

- 43. The method of claim 42, further comprising supplying gas to the feed inlet to propel the material into the grinding chamber.
- 44. The method of claim 42, further comprising supplying gas to the gas inlet to create a vortex within the grinding chamber.
 - 45. The method of claim 44, further comprising receiving the material at the outlet.
 - 46. The method of claim 42, wherein the feed inlet is oriented at an angle to a horizontal.
 - 47. The method of claim 46, wherein the angle is about 30 degrees or more.
- 48. The method of claim 42, wherein the manifold comprises a one-piece manifold.